

POLISHING INHIBITING LAYER FORMING ADDITIVE, SLURRY AND CMP METHOD

Abstract

A polishing inhibiting layer forming additive for a slurry, the slurry so formed, and a method of chemical mechanical polishing are disclosed. The polishing inhibiting layer is formed through application of the slurry to the surface being polished and is removable at a critical polishing pressure. The polishing inhibiting layer allows recessed or low pattern density locations to be protected until a critical polishing pressure is exceeded based on geometric and planarity considerations, rather than slurry or polishing pad considerations. With the additive, polishing rate is non-linear relative to polishing pressure in a recessed/less pattern dense location. In one embodiment, the additive has a chemical structure: $[\text{CH}_3(\text{CH}_2)_x\text{N(R)}]\text{M}$, wherein M is selected from the group consisting of: Cl, Br and I, x equals an integer between 2 and 24, and the R includes three carbon-based functional groups, each having less than eight carbon atoms.